



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,726	10/15/2001	James W. Landes	01-521	3323

719 7590 09/03/2003

CATERPILLAR INC.
100 N.E. ADAMS STREET
PATENT DEPT.
PEORIA, IL 616296490

EXAMINER

SWENSON, BRIAN L

ART UNIT PAPER NUMBER

3618

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,726

Applicant(s)

LANDES ET AL.

Examiner

Brian Swenson

Art Unit

3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 10 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to After Final Office Action

1. Acknowledgment is made of Applicant's request for reconsideration of the finality of the rejection of the Office Action filed as paper number 5 on 28 April 2003 is persuasive and, therefore, the finality of that action is withdrawn. An action on the merits of pending claims 1-16 follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 11-13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,054,570 issued to Naito et al. in view of U.S. Patent No. 6,076,622 issued to Chakraborty et al.

Naito et al., in Figures 1-2 and respective portions of the specification, teach of a cruise control system for a vehicle including an electronic controller (8) producing fuel delivery commands (signals S_o and S_c ; open and close the throttle) to control power output of the engine, the electric controller including a cruise controller mode (switch 1 sets the cruise control; Col. 2, line 51); Naito et al. teach of the electric controller receiving communication signals (the controller receives signals from the speed sensor (5), the cruise setting switch (1), the brake switch (2) and the stop lamp switch (4); Figure 2; Col. 3, lines 7-12) and calculating a fuel delivery command based, at least in

Art Unit: 3618

part, on the communication signals when the controller is operated in the cruise control mode (the controller outputs the cruise control signals to throttle actuator based on the inputted signals; Col. 3, lines 13-24). Naito et al. teach of disengaging the advanced cruise control mode in response to receiving no valid communication signal for greater than a first period of time. See the control process Figure 2, where the cruise control is inhibited if no valid communication signal is received from the brake switch (2) and stop lamp (3) caused by a fault in either switch, see at least Col. 2, lines 12-22. The controller re-engages the cruise control after waiting a predetermined period of time (step 111) and the operator engages cruise setting switch (1).

Naito et al. teach of a traditional cruise control, but do not teach of an intelligent or advanced cruise controller.

Intelligent or advanced cruise controllers are well known in the vehicle art. Chakraborty et al. in Figures 1-10, and respective portions of the specification teach of an intelligent or advanced cruise controller and method for intelligent cruise control of a semi-trailer. Chakraborty et al. disclose an electric engine controller (40; Col. 6, lines 56-57), the electronic controller produces fuel delivery commands to control power output of the engine, included within the electronic controller is a cruise control module (70; Col. 8, lines 15-17). The cruise control module functions as either an advanced (intelligent) cruise controller that maintains a constant following distance from a preceding vehicle and the cruise control module can function also as a traditional cruise controller (Col. 8, lines 15-17). The cruise controller can be engaged/disengaged via a set button located within the dash console (30; Col. 10, lines 64+, Col. 11, lines 1-8).

Art Unit: 3618

The electronic controller receives communicates signals from a plurality of sensors including: an acceleration pedal sensor (50), brake pedal sensor (52) and an inter-vehicle distance sensor (58) to operate the cruise controller (Cols. 6-7). The communication interface between the electronic controller and distance sensor is a controller area network (CAN) or other acceptable communication link (Col. 7, lines 50+). The control logic sequence for the cruise control system is shown in Figure 3 and Cols. 9+. Chakraborty et al. teach of determining the status of the vehicle distance sensor via the CAN communication link. If it is determined that there is an error or malfunction in the distance sensor than the intelligent and traditional cruise control are disabled (Col. 10, lines 5-15).

It would have been obvious to one having ordinary skill in the art at the time of invention to include an intelligent cruise controller, as taught by Chakraborty et al. in the invention taught by Naito et al. One would be motivated to include an intelligent cruise controller to allow the vehicle to follow a preceding vehicle at a set distance to prevent a possible collision. It would also have been obvious to one having ordinary skill in the art at the time of invention to also disengage the intelligent cruise control if an error or malfunction is detected for a predetermined period of time in the signal from the distance sensor, taught by Chakraborty et al., in the same manner as taught by Naito et al. for the brake and lamp signals. One would be motivated to disengage the intelligent cruise controller based on Chakraborty et al.'s disclosure that if the distance sensor is in error or malfunction then it is disabled (Chakraborty et al. Col. 10, lines 5-15) and to wait a predetermined period of time to verify that there is a malfunction to be in accord with

Naito et al.'s objective of preventing erroneous inhibition of the cruise control (Naito et al. Col. 1, lines 62-65).

In regards to claims 2 and 13, Chakraborty et al. teach of detecting an error in the distance sensor and then disabling the intelligent and traditional cruise control (Col. 10, lines 5-15). A first period of time elapses between the detection and disabling of the intelligent and traditional cruise control. Naito et al. teach of detecting a fault in a communication signal and then waiting for a predetermined of time to elapse before inhibiting the cruise control (Figure 2; see especially steps 108-109). In the invention taught by Naito et al. and as modified by Chakraborty et al. it would be obvious to one having ordinary skill in the art at the time of invention to inhibit the advanced cruise control in response to the detection of an error in the distance sensor for a first time period and then examine the signal in the manner taught Naito et al. in Figure 2 for a predetermined time, which serves as a second longer time period, and to then disable the cruise control if the second predetermined time period elapses to increase the safety of the vehicle by controlling the vehicle to not relying on control signals from a possibly faulty sensor and then examine the sensor for a time period to determine if there is a malfunction and if so prohibiting control of the vehicle based on the malfunctioned sensor.

In regards to claims 3-6 it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the first time period less than about 500 ms to quickly disable control signals from a sensor that has a possible malfunction and to make the second time period about 3500 ms to adequately determine whether

Art Unit: 3618

the sensor is malfunctioned, additionally it has been held that discovering an optimum value optimum value of a result effective variable involves only routine skill in the art.

In regards to claim 15, Naito et al. as modified by Chakraborty et al. are silent if a cruise control resume switch is included. It would have been obvious to one having ordinary skill in the art at the time of invention to include a cruise control resume switch as a cruise control resume switch is a well known feature for traditional cruise controllers.

Allowable Subject Matter

3. Claims 10 and 14 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the primary reasons for the indication of allowable subject matter is the inclusion of: re-initializing the advanced cruise control of the vehicle after a second predetermined period of time has elapsed only by re-starting the engine.

Conclusion

4. Applicant's arguments with respect to claims 1 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Swenson whose telephone number is (703) 305-8163. The examiner can normally be reached on M-F 9-5.


Art Unit: 3618

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson can be reached on (703) 308-0885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


bls

Brian Swenson
Examiner
Art Unit 3618


BRIAN L. JOHNSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3800
12/10/03